

## AMENDMENTS TO THE CLAIMS

1. (Original) A thin film magnetic memory device comprising:  
a plurality of memory cells each executing data storage; and  
a plurality of data lines arranged according to predetermined segments of said plurality of memory cells, respectively, wherein  
each of said plurality of memory cells includes:  
a magnetic storage portion magnetized in a direction according to a level of stored data, and  
having a different electric resistance according to a magnetization direction, and  
an access element electrically connected to said magnetic storage portion in series between  
corresponding one of said plurality of data lines and a first voltage, and turned on in at least one  
selected memory cell as a data read target memory cell,  
said thin film magnetic memory device further comprises:  
a select gate electrically connecting the data line corresponding to said selected memory cell  
among said plurality of data lines to an internal node; and  
a data read circuit for reading said stored data of said selected memory cell, and wherein  
said data read circuit includes  
a constant current circuit electrically connected between a second voltage and said internal  
node, and supplying a constant current according to a control voltage adjustable in a nonvolatile  
manner according to an external input, to said internal node, and  
a voltage amplification circuit generating read data according to a voltages of said internal  
node.

2. (Original) The thin film magnetic memory device according to claim 1, wherein

said constant current circuit includes:

- a current source circuit outputting said constant current according to said control voltage;
- a first voltage terminal receiving an input of an external adjustment voltage during an operation test;
- a voltage switch portion transmitting said adjustment voltage to said current source circuit as said control voltage during said operation test; and
- a current monitor portion detecting said constant current during said operation test, and

wherein

- said current monitor portion includes
- a monitor resistor portion electrically connected between said internal node and said first voltage during said operation test, and
- a second voltage terminal allowing, from outside, application of a predetermined voltage and measurement of resulting current flow during said operation test.

3. (Original) The thin film magnetic memory device according to claim 2, wherein said monitor resistor portion includes a plurality of magneto-resistance elements connected in series between said internal node and said first voltage, and each manufactured in a same manner as said magnetic storage portion.

4. (Original) The thin film magnetic memory device according to claim 1, wherein said constant current circuit includes a voltage adjustment circuit generating said control voltage, and

- said voltage adjustment circuit includes

a plurality of program elements each changing from a first state to a second state in a nonvolatile manner according to said external input, and

a voltage adjustment portion setting a voltage level of said control voltage according to a combination of the respective states of said plurality of program elements.

5. (Original) The thin film magnetic memory device according to claim 4, wherein said voltage adjustment circuit includes,

a plurality of test gate circuits each provided to correspond to at least one of said plurality of program elements, and

a plurality of test terminals provided to correspond to said plurality of test gate circuits, and receiving external pseudo-program signals, respectively, and wherein

each of said plurality of test gate circuits is electrically connected to corresponding one of said plurality of program elements in series or in parallel, and forms a same electrical connection state as said second state of the corresponding program element, in response to a corresponding one of said pseudo-program signals.

Claims 6 - 19. (Cancelled).

20. (New) A thin film magnetic memory device comprising:

a plurality of memory cells each executing data storage; and

a plurality of data lines arranged according to predetermined segments of said plurality of memory cells, respectively, wherein

each of said plurality of memory cells includes a magnetic storage portion magnetized in a direction according to a level of stored data, and having a different electric resistance according to a magnetization direction,

said thin film magnetic memory device further comprises  
a data read circuit for reading said stored data of a selected memory cell, and wherein  
said data read circuit includes  
a read current circuit for supplying a read current which is adjustable according to an  
external input and  
an amplification circuit generating read data according to the stored memory cell data by  
using said read current.

21. (New) The thin film magnetic memory device according to claim 20, wherein said  
read current is adjustable in a nonvolatile manner.

22. (New) The thin film magnetic memory device according to claim 20, wherein  
said read current circuit includes:  
a current source circuit outputting said read current according to a control voltage;  
a first voltage terminal receiving an input of an external adjustment voltage during an  
operation test;  
a voltage switch portion transmitting said adjustment voltage to said current source circuit as  
said control voltage during said operation test; and  
a current monitor portion detecting said read current during said operation test, and wherein  
said current monitor portion includes  
a monitor resistor portion electrically connected between a first voltage and an internal node  
which is connected to said first voltage via a selected memory cell of said memory cells during said  
operation test, and

a second voltage terminal allowing, from outside, application of a predetermined voltage and measurement of resulting current flow during said operation test.

23. (New) The thin film magnetic memory device according to claim 22, wherein said monitor resistor portion includes a plurality of magneto-resistance elements connected in series between said internal node and said first voltage, and each manufactured in a same manner as said magnetic storage portion.

24. (New) The thin film magnetic memory device according to claim 20, wherein said read current circuit includes a voltage adjustment circuit generating a control voltage for controlling said read current, and  
said voltage adjustment circuit includes  
a plurality of program elements each changing from a first state to a second state in a nonvolatile manner according to said external input, and  
a voltage adjustment portion setting a voltage level of said control voltage according to a combination of the respective states of said plurality of program elements.

25. (New) The thin film magnetic memory device according to claim 24, wherein said voltage adjustment circuit includes  
a plurality of test gate circuits each provided to correspond to at least one of said plurality of program elements, and  
a plurality of test terminals provided to correspond to said plurality of test gate circuits, and receiving external pseudo-program signals, respectively, and wherein

each of said plurality of test gate circuits is electrically connected to corresponding one of said plurality of program elements in series or in parallel, and forms a same electrical connection state as said second state of the corresponding program element, in response to a corresponding one of said pseudo-program signals.

26. (New) A memory device comprising:

a plurality of memory cells each executing data storage; and

a plurality of data lines arranged according to predetermined segments of said plurality of memory cells, respectively,

each of said plurality of memory cells including a storage portion having one of first and second electric resistances according to a level of stored data

said memory device further comprises:

a current supply circuit supplying a current passing through said storage portion, said current supply circuit supplying a first constant current to at least one of said plurality of data lines in a normal operation mode, and supplying a second constant current higher than said first constant current, to at least one of said plurality of data lines in another operation mode.

27. (New) The memory device according to claim 26 wherein

said storage portion includes

a first magnetic body layer magnetized in a fixed direction;

a second magnetic body layer magnetized in a direction according to the level of said stored data, and

an insulating film formed between said first and second magnetic body layers, and wherein

said another operation mode corresponds to a defect acceleration test for screening said insulating film.

28. (New) The memory device according to claim 26, wherein  
a bias voltage applied to both ends of said insulating film in said another operation mode is greater than the bias voltage in said normal operation mode.

29. (New) The memory device according to claim 26, wherein  
each of said memory cells further includes an access element being constituted of a field effect transistor, and electrically connected to said storage portion in series between corresponding one of said plurality of data lines and a first voltage, and selectively turned on,  
in the plurality of memory cells in which said access element is turned on, a voltage applied to a gate of said field effect transistor in said another operation mode is set so that an ON-resistance of said field effect transistor is lower than the ON-resistance in said normal operation mode.

30. (New) The memory device according to claim 26, wherein  
said plurality of memory cells are arranged in a matrix;  
said plurality of data lines are arranged to correspond to respective memory cell columns;  
said memory device further comprises a plurality of select gate circuits provided corresponding to respective memory cell columns, and controlling connection between said current supply circuit and said plurality of data lines; and  
each of said select gate circuits connects N data lines (N: an integer not less than 2) among said plurality of data lines to said current supply circuit in said another operation mode, and

connects one data line among said plurality of data lines corresponding to a selected memory cell, among the plurality of memory cells, as a data read target memory cell.

31. (New) The memory device according to claim 26, wherein  
said plurality of memory cells are arranged in a matrix,  
each of said memory cells further includes an access element electrically connected to said storage portion in series between corresponding one of said plurality of data lines and a first voltage, and selectively turned on;  
said memory device further comprises a row select portion controlling said access element to be turned on and off for each memory cell row; and  
said row select portion turns on access element groups corresponding to M memory cell rows (M: an integer not less than 2) in said another operation mode, and turns on the access element groups corresponding to one memory cell row corresponding to a selected memory cell, among the memory cells, as a data read target memory cell in said normal operation mode.

32. (New) The memory device according to claim 26 wherein  
said current supply circuit includes  
a current source circuit for outputting a current according to a control voltage to the at least one of said data lines in each of said normal operation mode and said another operation mode,  
a first voltage adjustment circuit adjusting a first reference voltage corresponding to said first current;  
a second voltage adjustment circuit adjusting a second reference voltage corresponding to said second current; and



a voltage switch circuit transmitting one of said first and second reference voltages to said current source circuit as said control voltage in accordance with an operation mode.

33. (New) The memory device according to claim 32, wherein  
said first voltage adjustment circuit adjusts said first reference voltage in a nonvolatile manner in response to a first external input; and  
said second voltage adjustment circuit adjusts said second reference voltage in a nonvolatile manner in response to a second external input.

34. (New) The memory device according to claim 32, wherein  
said first voltage adjustment circuit adjusts said first reference voltage in a nonvolatile manner in response to a first external input; and  
said second voltage adjustment circuit generates said second reference voltage according to said first reference voltage from said first voltage adjustment circuit so that a ratio of said first reference voltage to said second reference voltage has a predetermined value.

35. (New) The memory device according to claim 26, wherein  
each of said memory cells further includes an access element electrically connected to said storage portion in series between corresponding one of said plurality of data lines and a first voltage, and selectively turned on, and  
said memory device further comprises  
a dummy memory cell provided for M memory cells (M: an integer not less than 2) among said plurality of memory cells, wherein

said dummy memory cell includes

a dummy storage portion having an intermediate electric resistance between said first and second electric resistances, and

a dummy access element electrically connected to said dummy storage portion in series between one of said plurality of data lines and said first voltage, and selectively turned on, and wherein

a current stress applied to said dummy storage portion in said another operation mode is higher than a current stress applied to said storage portion in at least one test target memory cell among said plurality of memory cells.

36. (New) The memory device according to claim 35, further comprising

a driver circuit controlling said access element and said dummy access element to be turned on and off, wherein

said driver circuit sets a product of time for which a third current passes through said dummy storage portion and said third current, to be M times as large as a product of time for which said second current passes through said storage portion of said test target memory cell and said second current.

37. (New) The memory device according to claim 35, wherein

each of said access element is constituted of a first field effect transistor, and each said dummy access element is constituted of and a second field effect transistor,

said memory device further comprises a driver circuit controlling said access element and said dummy access element to be turned on and off, and

said driver circuit sets each of gate voltages of said first field effect transistor and said second field effect transistor included in said at least one test target memory cell among said plurality of memory cells so that an ON-resistance of said second field effect transistor is lower than an ON-resistance of said first field effect transistor in said another operation mode.

38. (New) The memory device according to claim 35, further comprising  
a driver circuit controlling said access element and said dummy access element to be turned on and off, wherein

said driver circuit sets an on-period of said dummy access element to be longer than an on-period of said access element in said at least one test target memory cell.

39. (New) The memory device according to claim 26, wherein  
said storage portion is electrically connected between a first voltage and corresponding one of said data lines, in each of said memory cells, and  
said current supply circuit includes  
a read drive portion connecting the at least one data line to a second voltage higher than said first voltage, and  
a data write circuit operating by being supplied with a third voltage higher than said second voltage, and generating a data write current magnetizing said storage portion of a selected memory cell, among said plurality of memory cells, as a data write target memory cell in accordance with the level of the stored data during data write in said normal operation mode,  
said memory device further comprises a select gate circuit controlling connection between said current supply circuit and said plurality of data lines;

said select gate circuit connects one of said read drive portion and said data write circuit to the at least one corresponding data line among said plurality of data lines corresponding to said selected memory cell in said normal operation mode, and connects said data write circuit to the at least one data line among said plurality of data lines, corresponding to test target memory cells in said another operation mode, and wherein

said data write circuit supplies said second constant current in said another operation mode.